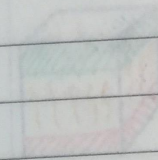


Electronics I

Dr. Mostafa Mohamed.



10¹⁹ atoms

Conduction Band

Valence Band

Forbidden Band

Energy gap

Energy gap

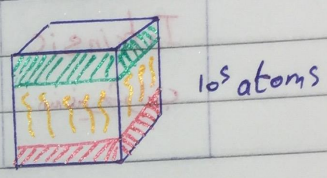
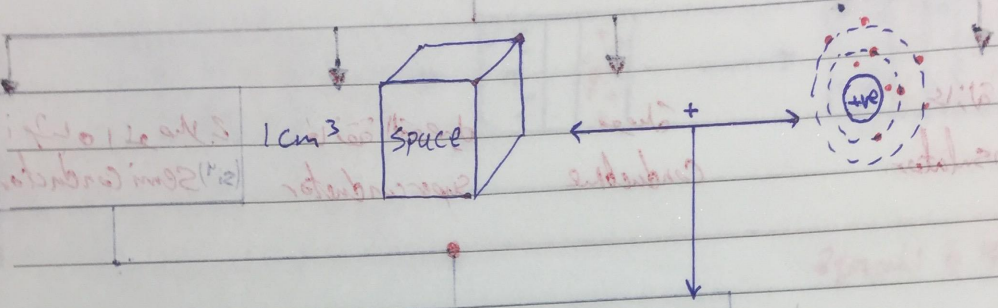
Energy gap

Energy gap

Energy gap

"Semiconductors"

لو كانت مكعباً بأبعاده 1cm وفيه الإلكترونات :



zoom

"Energy Diagram"

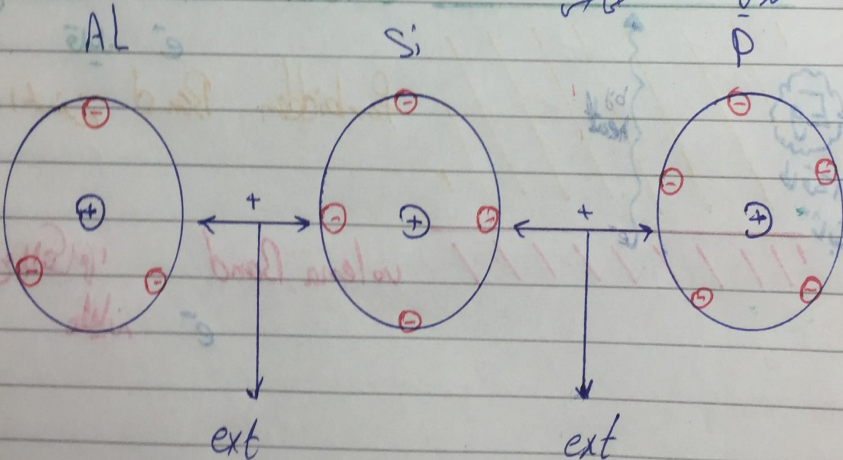
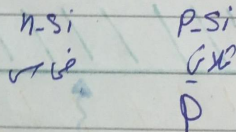
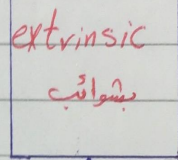
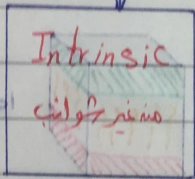
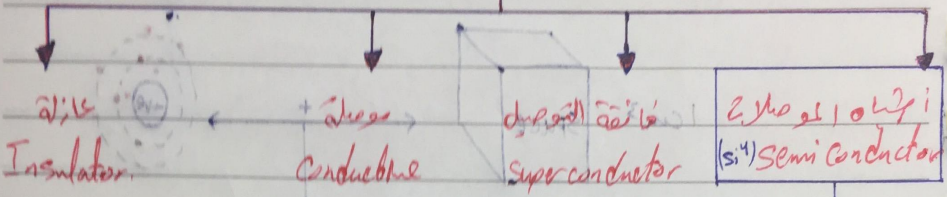


$E_g \uparrow$ ← "Energy gap" E_g لو
 $E_g \downarrow$ ←
 $E_g \approx 0$ ←

علاقة عكسية بين $E_g \propto \frac{1}{T}$

"Solid State" Materials.

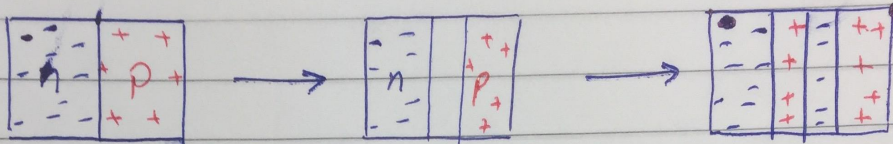
Classification of materials



"P-Silicon"
P-type silicon
↓
المادة السليكونية

n-silicon
n-type silicon
↑
المادة السليكونية

* P-n Junction *
* Diode *



Diode